AMX™

8.5" Color Passive LCD Touch Panels

(Firmware version G3 or higher)

Touch Panels and Accessories
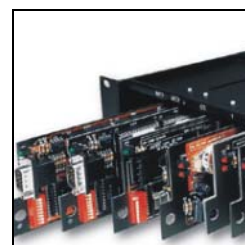
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Product Information

The Color Passive-Matrix touch panels contain an 8.5" (215.90 mm) 256-color passive-matrix liquid crystal display (LCD). The self-contained enclosures use a microprocessor to control a wide range of multimedia equipment. Using the TPDesign3 Touch Panel design program, you create custom pages with buttons, icons, sliders, bargraphs, time displays, logos, and drawings.

8.5" Color Passive-Matrix touch panels include:

- AXD-CP (Decor-style) and AXD-CP/PB (Decor-style pushbutton)
- AXT-CP (TiltScreen) and AXT-CP/PB (TiltScreen pushbutton)
- AXM-CP (Rack-mount) and AXM-CP/PB (Rack-mount pushbutton)

Specifications

The table below lists the specifications for the AXD-CP (/PB), AXT-CP, and AXM-CP (/PB).

Specifications	
Dimensions (HWD):	
AXD-CP	• 7.50" x 11.25" x 1.77" [low-profile Back Box] (17.48 cm x 28.58 cm x 4.5 cm)
	• 7.50" x 11.25" x 2.44" [BB-TP2 Back Box] (17.48 cm x 28.58 cm x 6.2 cm)
AXT-CP	• TiltScreen panel dimensions (HW): 7.10" x 9.11" (18.03 cm x 23.14 cm)
	• LCD screen dimensions (HW): 4.80" x 6.40" (12.19 cm x 16.26 cm)
	• Base dimensions (WD): 11.46" x 9.46" (29.11 cm x 24.03 cm)
	• Adjustable display heights: 3.40" (8.64 cm) fully lowered; 8.50" (21.59 cm) fully raised.
	• Screen Dimensions (HW): 8.5" diagonal view - 4.80" x 6.40" (12.19 cm x 16.26 cm)
AXM-CP	• 6.97" x 19.0" x 1.62" (low-profile Back Box) (17.70 cm x 48.26 cm x 4.11 cm)
	• 6.97" x 19.0" x 2.64" (BB-TP2 Back Box) (17.70 cm x 48.26 cm x 6.71 cm)
Weight:	
AXD-CP	4.5 lbs. (2.1 kg)
AXT-CP	3.6 lbs. (1.6 kg)
AXM-CP	4.4 lbs. (2.0 kg)
Power	650 mA @ 12 VDC
Display Type	Color passive-matrix 256 color LCD
Screen Res. (HV)	640 x 480 pixels
Memory	1 MB
Rear Panel Connectors:	
RS-232	• DB-9 (male) connector for PC data transmission or Microsoft mouse control
AXlink	• 4-pin male bus connector
PWR	• 2-pin male 12 VDC power connector

Specifications (Cont.)	
Enclosure:	
AXD-CP	Metal sub-plate and bezel with black or white matte finish
AXT-CP	TiltScreen tabletop console; black plastic with matte finish
AXM-CP	19" (48.3 cm) Unimount; metal with black matte finish (4 rack units high)
Accessories Included	• 12 VDC power supply, 1.9 A (110 VAC installations only) • Low-profile Back Box (AXD-CP and AXM-CP only) • 4-pin female AXlink bus connector (AXM-CP only) • 4-pin AXlink data/power connector (AXT-CP only)
Optional Accessories	• Up to 8 pushbuttons per side for the AXD-CP and AXM-CP. • 9-pin female DB-9 connector (AXD-CP and AXT-CP only. • PSN2.8 Power Supply • BB-TP2 Back Box (AXD-CP)
Software	• TPDesign - Windows-based (16-bit) design program (optional for the AXT-CP) • TPDesign3 - Windows-based (32-bit) design program (optional for the AXT-CP)
AXT-CP Wireless Options:	
TiltScreen	• WAV-PK WavePack • SMT-PK SmartPack
Options:	
Decor-style Panels	• External pushbuttons (AXD-CP (/PB)) • UniMount Back Box (BB-TP2) and sub-plate, bezel security plates

Cleaning the Touch Overlay

You should clean the touch screen overlay after each day's use. Always use clean cotton cloths, and a spray bottle of cleaning solution consisting of 50% isopropyl alcohol and 50% water.

Installation

Mounting the Touch Panel

The following paragraphs describe mounting the Decor and rack-mount touch panels. TiltScreen touch panels can be placed on any flat surface.

Decor style panels with low-profile Back Boxes

1. Cut out the surface using the dimensions shown in FIG. 1.
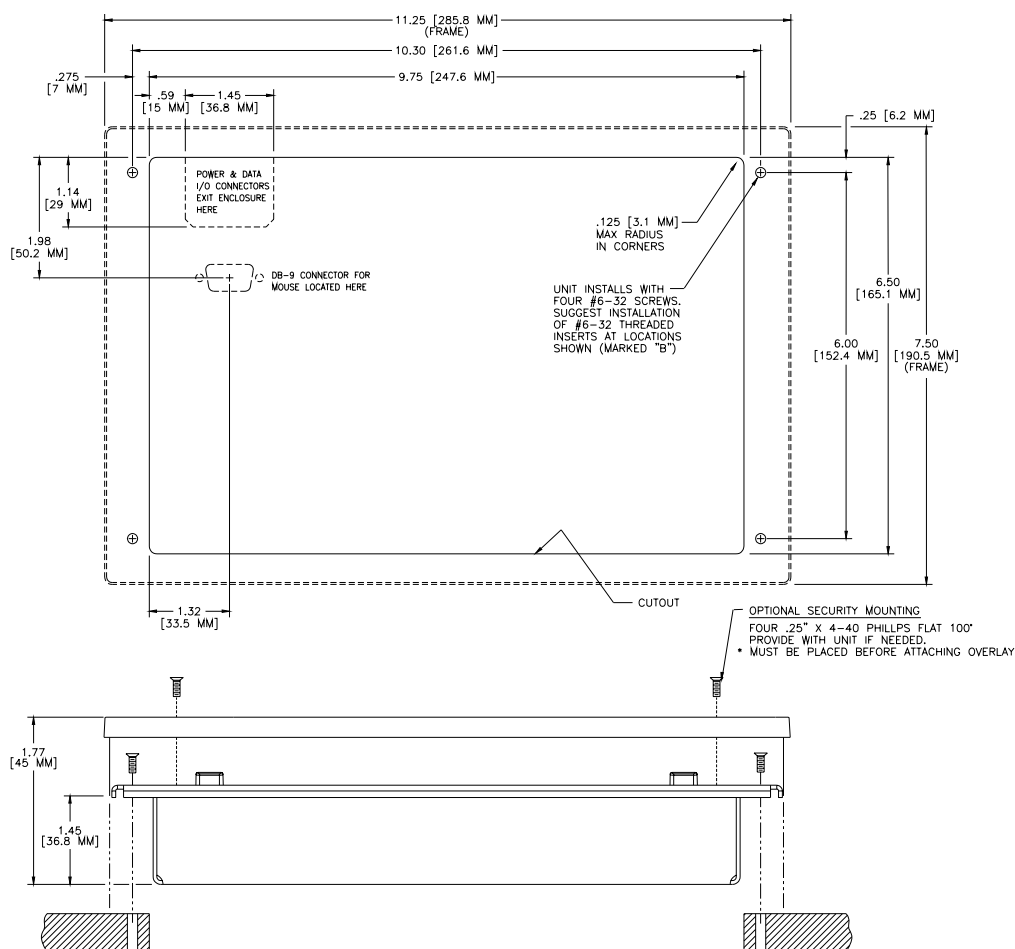
FIG. 1 Decor style and low-profile Back Box output dimensions

2. Carefully insert a flat-blade screwdriver into the release slot on the touch panel's faceplate and remove the engraved overlay.

3. Place the touch panel into the cutout and mark the screw insert positions as shown in FIG. 1.

4. Remove the touch panel and drill four #6-32 insert holes. Then, place a threaded insert into each hole.

5. Disconnect the AXlink connector from the Central Controller. Then, disconnect the optional RS-232 wiring from the external RS-232 device connected to the touch panel.

6. Fasten the low-profile Back Box to the surface using the #6-32 machine screws supplied with the enclosure.

7. Attach the data and power wiring to the touch panel.

8. Test the connection by reconnecting the AXlink connector to the Central Controller and optional RS-232 wiring to the source equipment. Before continuing, disconnect all connections until panel installation is complete. Once attached to the Decor style faceplate, the security screws can't be replaced without removing the overlay.

9. Fasten the touch panel and low-profile Back Box using the #6-32 machine screws supplied with the enclosure panel.

10. Place the faceplate onto the bezel. You can also secure the faceplate to the bezel using the four Phillips flat-head security screws.

11. Insert the engraved overlay back into the bezel.

12. Remove the backing from the adhesive tape strips located on the front of the touch panel; press the engraved overlay onto the faceplate.

13. Reconnect the AXlink wiring to the Central Controller and RS-232 wiring (optional) to the external RS-232 device. The touch panel beeps when you apply power.

Installing touch panels and a BB-TP2 Back Box (solid surface)

FIG. 2 shows a sample AXD-CP/PB and BB-TP2 Back Box for solid surfaces.

The BB-TP2 can also be mounted to wood or metal studs using the pre-drilled stud mounting holes.

FIG. 2 AXD-CP/PB and BB-TP2 Back Box (solid surfaces)

1. Cut out the surface using the dimensions shown in FIG. 3.
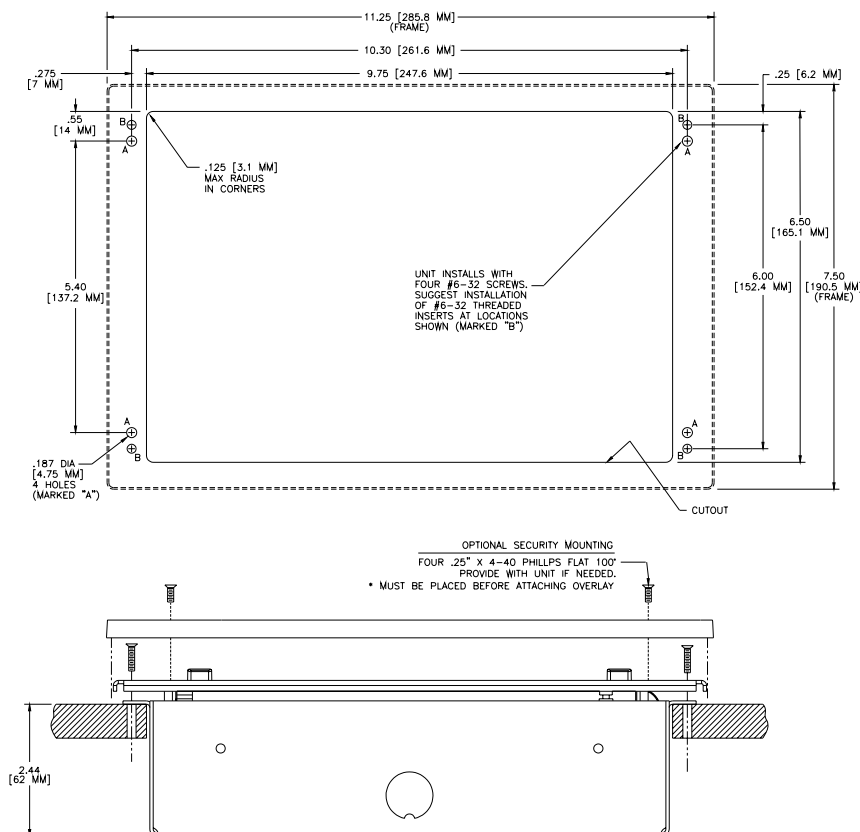
FIG. 3 Decor style (AXD) and BB-TP2 cutout dimensions

NOTE

The touch panel must always be installed with the release slot located at the bottom.
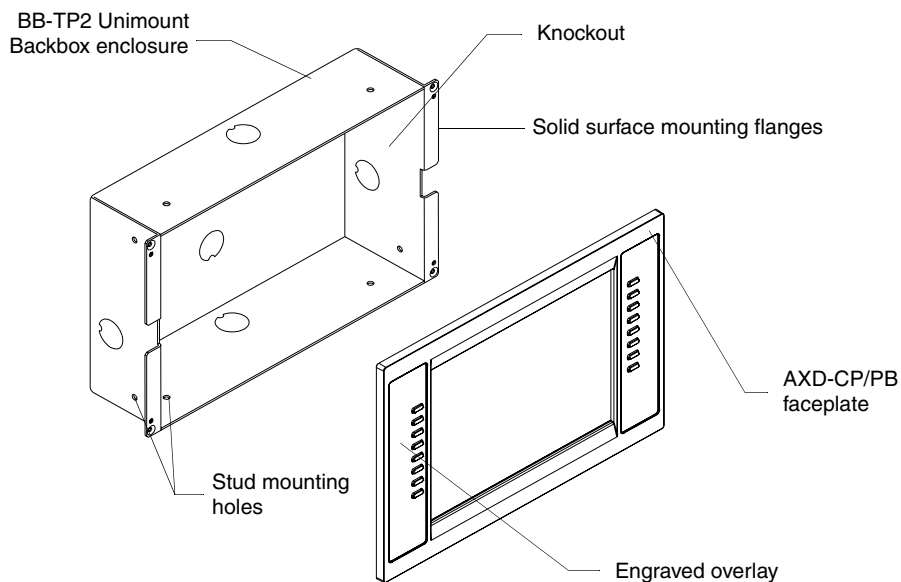
2. Carefully insert a flat-blade screwdriver into the release slot on the touch panel's bezel and remove the engraved overlay.

3. Lay the touch panel facedown onto a soft cloth and remove the four screws from the low-profile Back Box. Remove the Back Box and discard.

4. Place the BB-TP2 into the cutout and mark the threaded insert positions as shown in FIG. 3.

5. Remove the BB-TP2 and drill holes (A and B) for the panel (FIG. 3). Then, place #6-32 threaded inserts into the four holes marked 'B' in the cutout dimensions illustration.

6. Disconnect the AXlink connector from the Central Controller. Then, disconnect the optional RS-232 wiring from the external RS-232 device connected to the touch panel.

7. Remove one or more knockouts to accommodate the wiring as required.

8. Thread the incoming AXlink and RS-232 wiring through the knockouts. Refer to the *Wiring the Touch Panel* section on page 8 for additional wiring information.

9. Fasten the BB-TP2 to the solid surface using the supplied mounting screws.

10. Connect the AXlink and RS-232 wiring to the touch panel.

11. Test the connection by reconnecting the AXlink connector to the Central Controller and the optional RS-232 wiring to the source equipment. The panel beeps upon power-up. Before continuing, disconnect all connections until panel installation is complete.

12. Fasten the touch panel to the BB-TP2 using the #6-32 screws supplied with the panel.

13. Place the Decor-style faceplate onto the bezel. You can also secure the faceplate to the bezel using the four Phillips flat-head security screws.

14. Remove the backing from the adhesive tape strips on the touch panel; press the engraved overlay onto the faceplate. Once attached to the faceplate, the security screws cannot be replaced without removing the battery.

15. Reconnect the AXlink wiring to the Central Controller and RS-232 wiring (optional) to the external RS-232 device. The touch panel will beep when you apply power.

Installing touch panels and a BB-TP2 Back Box (plasterboard)

FIG. 4 shows the AXD-CP/PB and BB-TP2 Back Box for plasterboard.
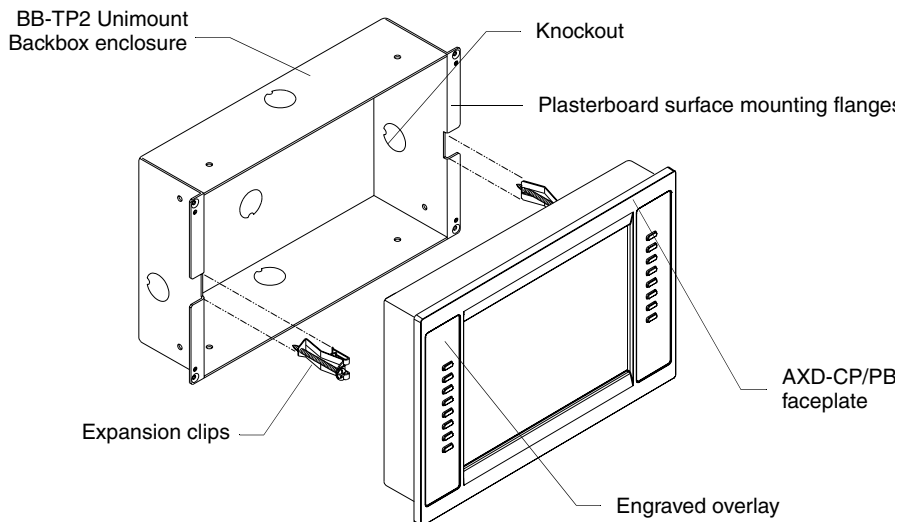
FIG. 4 AXD-CP/PB and BB-TP2 Back Box (plasterboard)

1. Cut out the surface using the dimensions shown in FIG. 5.

2. Carefully insert a flat-blade screwdriver into the release slot on the touch panel's faceplate and remove the engraved overlay.

3. Lay the touch panel facedown onto a soft cloth and remove the screws from the low-profile Back Box. Remove the Back Box and discard.

4. Place the BB-TP2 into the cutout and mark the threaded insert positions (FIG. 4).

5. Remove the BB-TP2 and drill four #6-32 insert holes. Then, place a threaded insert (or screw anchor) into each hole.

6. Disconnect the AXlink connector from the Central Controller that supplies power and data to the touch panel. Then, disconnect the optional RS-232 wiring from the external RS-232 device connected to the touch panel.

7. Remove one or more knockouts to accommodate the wiring as required.
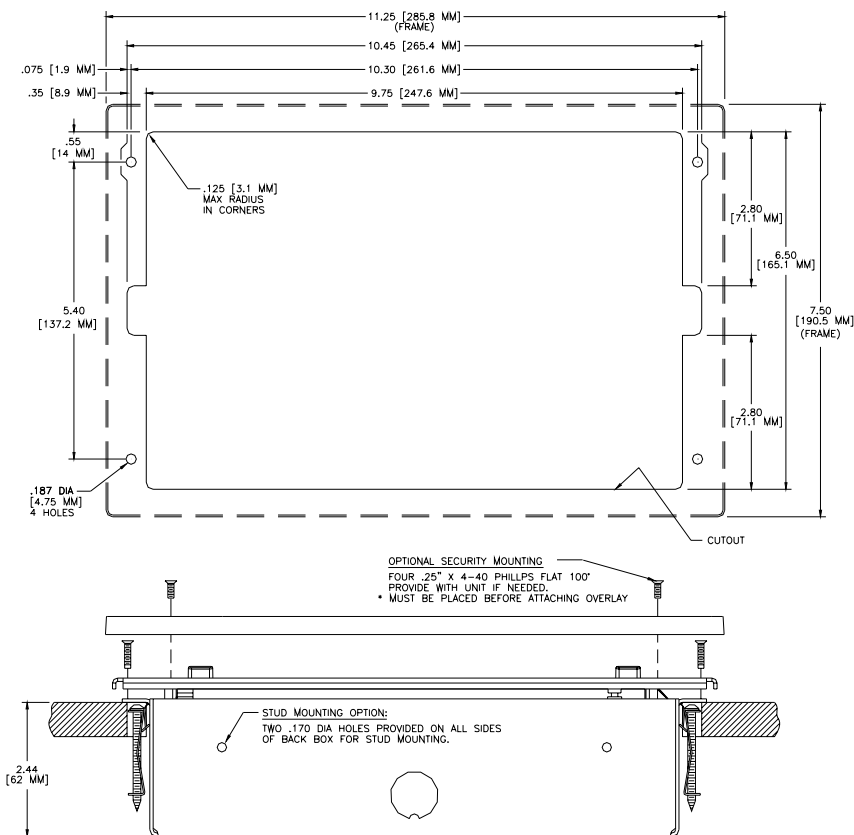
FIG. 5 Decor style (AXD) and BB-TP2 cutout dimensions for plasterboard

8. Thread the incoming AXlink and RS-232 wiring through the BB-TP2 knockouts. Refer to *Wiring the Touch Panel* section on page 8 for more information.

9. Fasten the BB-TP2 to the plasterboard using the expansion screws supplied with the enclosure.

10. Connect the AXlink and RS-232 wiring to the touch panel.

11. Test the connection by reconnecting the AXlink connector to the Central Controller and the optional RS-232 wiring to the source equipment. The panel beeps on power-up. Before continuing, disconnect all connections until panel installation is complete.

12. Fasten the touch panel to the BB-TP2 with the #6-32 screws supplied with the en-closure.

13. Place the Decor-style faceplate onto the bezel. You can also secure the faceplate to the bezel using the four Phillips flat-head security screws.

14. Remove the backing from the adhesive tape strips. Once attached to the faceplate, the security screws cannot be replaced without removing the overlay.

15. Press the engraved overlay onto the faceplate.

16. Reconnect the AXlink wiring to the Central Controller and RS-232 wiring (optional) to the external RS-232 device. The touch panel beeps on power-up.

Rack-mount panel (AXM-CP/PB)

1. Thread the incoming AXlink and optional RS-232 wiring through the opening in the equipment rack.

2. Disconnect the AXlink connector from the Central Controller and disconnect the optional RS-232 connector from the external RS-232 device connected to the touch panel.

3. Insert the touch panel into the equipment rack. Line up the top-left and bottom-right screw holes and start tightening the #6-32 screws. Then, tighten the bottom-left and top-right screws.

4. Connect the AXlink and RS-232 wiring (optional) to the touch panel. Refer to (DB-9) RS-232 Connector Pinouts table on page 10 for pinout descriptions. The touch panel beeps on power-up.

Wiring the Touch Panel

The RS-232, AXlink, and PWR (power supply) connectors are located at the rear of the AXT-CP as shown FIG. 6. The connectors are located on the top-left corner of the rack-mount touch panels as shown in FIG. 7.
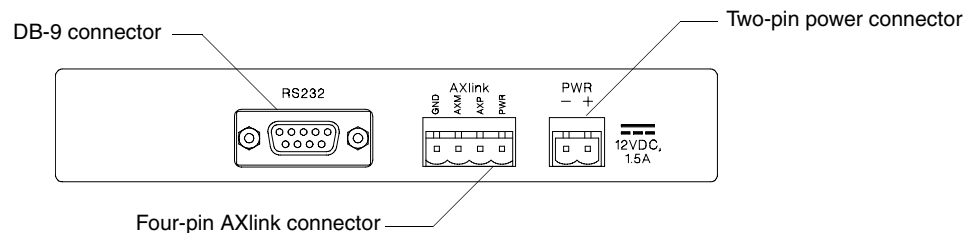
FIG. 6 AXT-CP (rear view)
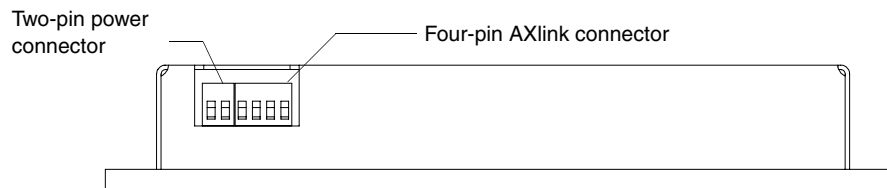
FIG. 7 AXD-CP (/PB) and AXM-CP (/PB) (top view)

Preparing captive wires

You will need a wire stripper, soldering iron, and flat-blade screwdriver to prepare and connect the captive wires.

Do not connect power to the touch panel until the wiring is complete. If you are using a 12 VDC power supply, apply power to the touch panel only after installation is complete.

1. Strip 0.25 inch of wire insulation off all wires and apply a light coat of solder to the ends using a soldering iron.

2. Insert each wire into the appropriate opening on the connector according to the wiring diagrams and connector types described in this subsection.

3. Turn the flat-blade screws clockwise to secure the wire in the connector. Do not over-torque the screws; doing so can bend the seating pin and damage the connector.

Wiring guidelines

The touch panels require 12 VDC power to operate properly. The Central Controller supplies power via the AXlink cable or external 12 VDC power supply. The maximum wiring distance between the Central Controller and touch panel is determined by power consumption, supplied voltage, and the wire gauge used for the cable. The table below lists wire sizes and the maximum lengths allowable between the touch panel and Central Controller. The maximum wiring lengths for using AXlink power are based on a minimum of 13.5 volts available at the Central Controller's power supply. Refer to the *Specifications* section on page 1 for more information on power requirements.

Wiring Guidelines	
Wire Size	**Maximum Wiring Length**
18 AWG	180.57 feet (55.04 m)
20 AWG	114.24 feet (34.82 m)
22 AWG	71.23 feet (21.71 m)
24 AWG	44.90 feet (13.69 m)

If you install the touch panel farther away from the control system than recommended in the Wiring Guidelines table, connect an external 12 VDC power supply to the 2-pin PWR connector on the touch panel.

Using AXlink for data and power

Connect the Central Controller's AXlink connector to the AXlink connector on the touch panel for data and 12 VDC power as shown in FIG. 8.
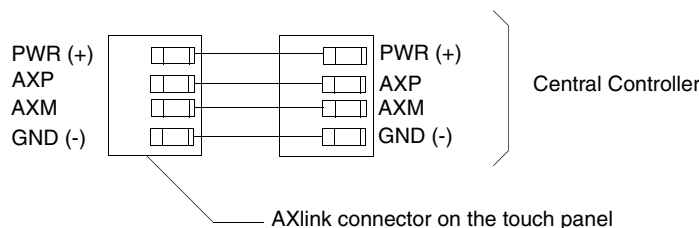
FIG. 8 AXlink wiring diagram

CAUTION

If you are using power from AXlink, disconnect the wiring from the Central Controller before wiring the touch panel.

Using the AXlink for data with a 12 VDC power supply

Connect the Central Controller's AXlink connector to the AXlink connector on the touch panel and external 12 VDC power supply as shown in FIG. 9.

Use an auxiliary 12 VDC power supply when the distance between the Central Controller and touch panel exceeds the limits described in Wiring Guidelines table on page 9.

Connect only the GND wire on the AXlink connector when using a 12 VDC power supply. Do not connect the PWR wire to the AXlink connector's PWR (+) terminal.
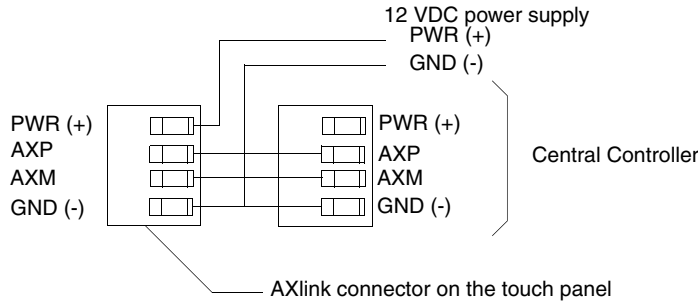
FIG. 9 AXlink and external 12 VDC power supply wiring diagram

Using the (DB-9) RS-232 connector for mouse control or data

The dual-function (DB-9) RS-232 connector supports most standard serial mouse control devices and RS-232 communication protocols for PC data transmission. Refer to the *TPDesign* or *TPDesign3 Touch Panel Program* instruction manual for data transmission information.

The table below lists (DB-9) RS-232 connector pinouts and FIG. 10 shows the (DB-9) RS-232 connector and power supply wiring diagram.

(DB-9) RS-232 Connector Pinouts		
Pin	**Signal**	**Function**
1	N/A	Not used
2	RXD	Receive data
3	TXD	Transmit data
4	DTR	Data terminal ready (not used)
5	GND	Signal ground
6	DSR	Data set ready (not used)
7	RTS	Request to send (not used)
8	CTS	Clear to send (not used)
9	N/A	Not used

Use connector pins 2, 3, and 5 for data and ground. For some applications, you may need to strap pins 7 (request to send) and 8 (clear to send) together depending on the PC.

FIG. 10 DB-9 RS-232 connector and power supply wiring diagram

Designing Touch Panel Pages

There are two ways to approach creating touch panel pages:
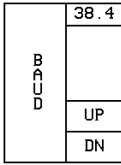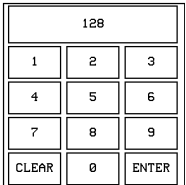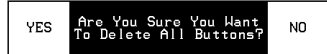
- TPDesign3 - Refer to the *TPDesign3 Touch Panel Program (Version 3. 16 or higher) Instruction Manual* for more information.

- On-board editor
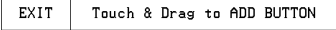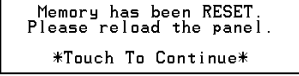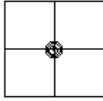
This document describes basic use of the on-board editor to create pages and buttons. Refer to the *G3 Firmware Design and Reference* instruction manual for more detailed firmware information.
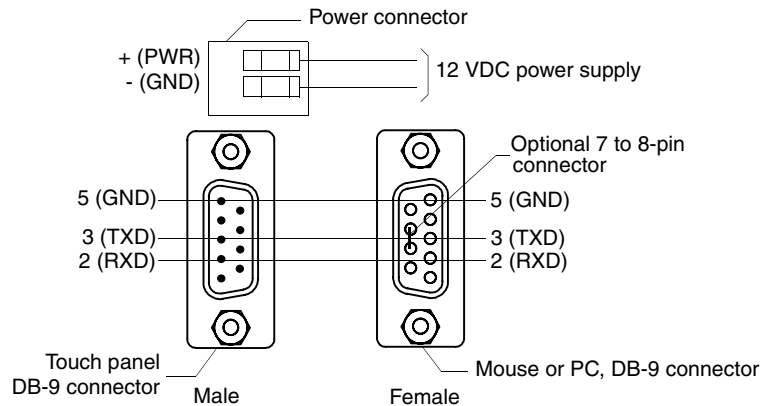
Buttons

Standard button types include rectangles and other geometric shapes you can create with the touch panel editor. Buttons are set with attributes, meaning there is a response from the Central Controller when you touch the button.

General buttons are part of the default touch panel program and cannot be changed. You use general buttons to create or revise pages and specify panel communication parameters. Button examples include selection buttons, information buttons, adjustment buttons, and operation bars. The general button categories are described in the table below.

General Button Categories	
Selection buttons MAIN	Selection buttons appear on touch panel pages and set communication parameters.
Information buttons SERIAL # 000-00-0000	Information buttons contain serial numbers and firmware version information. The properties of these buttons cannot be changed. These buttons have a black fill and yellow text.
Adjustment buttons 38.4 BAUD UP DN	You can use the UP and DN buttons to set adjustment buttons. The adjustment button example sets the baud rate for the connection from the touch panel to the computer.
Keypad buttons 128 1 2 3 4 5 6 7 8 9 CLEAR 0 ENTER	The keypad button opens a keypad so you can enter a password or value assignment. All keypad buttons are interactive except for the entry display.
Decision buttons YES Are You Sure You Want To Delete All Buttons? NO	Decision buttons appear when an operation has two options and requires verification before an action is performed.

General Button Categories (Cont.)	
Status buttons NO RGB HARDWARE	Status buttons always have a black fill with white letters and have no functionality except to display information.
Operation bars EXIT Touch & Drag to ADD BUTTON	Operation bars appear in the place of the Editor bar, after selecting a button or page edit operation. The operation bar indicates which edit function is currently active. When an edit operation is selected, it remains active until you press EXIT.
Touch to Continue buttons Memory has been RESET. Please reload the panel. *Touch To Continue*	"Touch to Continue" buttons appear when an operation requires user acknowledgement.
Joystick buttons	Joysticks are vertical and horizontal direction controllers for use with pan and tilt camera controllers.
Bargraph buttons	Bargraph buttons display a dynamic bargraph (vertical or horizontal). An example is the Batter level indicator button.

Activating Edit Mode

Before designing touch panel pages and buttons, you must activate EDIT mode. Once activated, use the EDIT button to enter Edit mode. This mode has options to add and configure touch panels and buttons. When powering up the touch panel, the first page is the Main page (see FIG. 11). Note that the Edit button is not available initially.
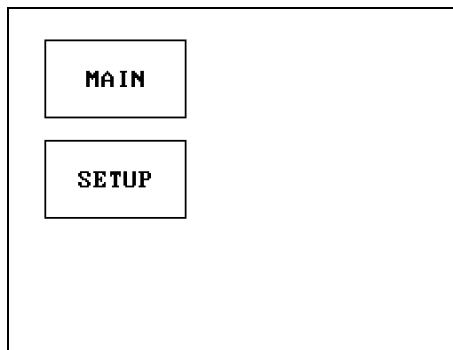
FIG. 11 Main Page

If you have a pre-programmed panel, you may not see the Main Page.

To activate edit mode:

1. Press SETUP in the Main page to open the Setup page (FIG. 12).
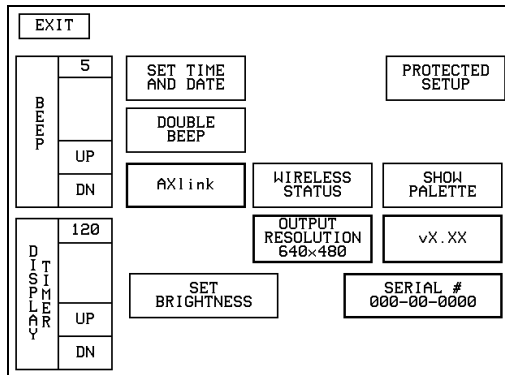
FIG. 12 Setup page

2. Press PROTECTED SETUP to open the keypad.

3. Enter 1988 (default password) in the keypad and press ENTER to open Protected Setup page. If you press ENTER after typing an incorrect password, you are immediately returned to the previous page.

4. Press EDITOR to enable Edit mode. The EDITOR button is highlighted in the Protected Setup page when enabled, as shown in FIG. 13.
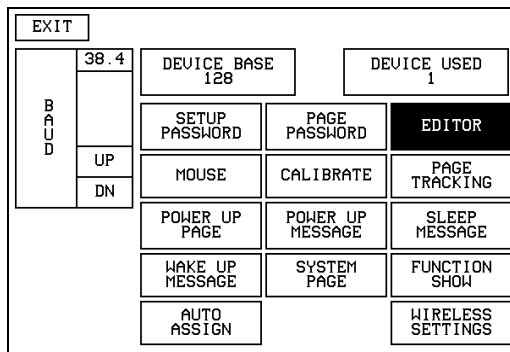
FIG. 13 Protected Setup page with the active EDITOR button

5. Press EXIT to close the Protected Setup page and return to the Setup page (now in the Edit mode).

6. Press EXIT again to return to the Main page. The EDIT button appears at the top of the page indicating that Edit mode is active.

7. Press EDIT to open the Edit bar. The BUTTON and PAGE options, in the Edit bar, (FIG. 14) are used to design and modify button and page settings.

Edit bar

```
┌─────────────────────────────────────────────┐
│ ┌──────┬────────┬──────┬───────────┬───────┐ │
│ │ EXIT │ BUTTON │ PAGE │ MAIN PAGE │ QUIT  │ │
│ │      │        │      │           │ EDITOR│ │
│ └──────┴────────┴──────┴───────────┴───────┘ │
│                                               │
│   ┌──────────────┐                            │
│   │     MAIN     │                            │
│   └──────────────┘                            │
│                                               │
│   ┌──────────────┐                            │
│   │    SETUP     │                            │
│   └──────────────┘                            │
│                                               │
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│                                               │
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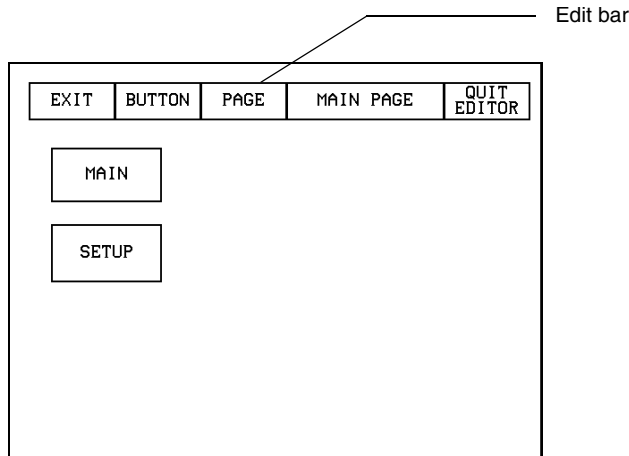
FIG. 14 Main page with Edit bar

Setting the Device Base

Press the DEVICE BASE option, in the Protected Setup page (FIG. 13), to assign a base (starting) device address to the touch panel.

1. Enter the base address for the touch panel. The base address range is from 1 - 255. Standard device addresses begin at 128.

2. Press Enter to save.

Setting the Device Used

Use the DEVICE USED option in the Protected Setup page (FIG. 13) to assign a value for the number of devices being controlled by the touch panel.

1. Press DEVICE USED to open the keypad and enter the panel's device number from 1 - 4. Each device number supports up to 255 programmable channel codes. The multiple device settings allow you to create up to four unique touch panel buttons and/or pages. This value is used to determine the current device being used by the panel.

2. Enter the number of devices being used by the touch panel.

3. Press Enter to save the value.

Adding a Page

1. Press PAGE on the Edit bar to open the PAGE menu.

2. Press ADD to open the keyboard and enter a name for the new page. Page names can be up to 20 characters.

3. Press EXIT CHANGE to save, close the keyboard, and go to the new page.

Setting the page color

1. Press EDIT to open the Edit bar on the newly created page.

2. Press PAGE on the Edit bar to open the PAGE menu.

3. Press PAGE COLOR to open the black and white color palette.

4. Select a color from the palette; the page automatically changes to the new color.

Adding a Button

To add a button to the current page:

1. Press BUTTON on the Edit bar to open the BUTTON menu.

2. Press ADD to open the ADD BUTTON operation bar. On the LCD screen, touch and drag to create a button. The first touch point is the upper-left corner of the button.

Resizing a button

1. Press BUTTON on the Edit bar to open the BUTTON menu.

2. Press RESIZE. Then, touch any edge of the button and drag. Removing your finger from the panel saves the button dimensions.

Defining On-Screen and External Button Properties

External pushbuttons are configured with features similar to on-screen buttons. Their functionality can be set just as any other button on the touch panel.

Use the PROPERTIES option of the BUTTON menu in the Edit bar to set button borders, page flips, button colors for channel on/off conditions, channel/variable text codes, and string/macro assignments.

External button properties include only the button type, page flips, channel codes, and string/macro assignments. Although the Border and Color sections of this page appear, they are of no use to external pushbuttons since they do not appear on-screen.

Use the following steps to set button properties:

1. Press BUTTON on the Edit bar to open the BUTTON menu options.

2. Press PROPERTIES to open the PROPERTIES operation bar.

3. Press the new button to open the Button Properties page. This page lists the properties for the active button.

4. Press BUTTON TYPE; this opens the BUTTON TYPE menu.

5. Choose a button type for the selected button to open the associated Button Properties page. Each button type has its own Button Properties page with settings specific to the button type.

6. Press BORDER to open the BUTTON BORDER pages.

7. Select a border to set for the button and return to the Button Properties page. The BORDER button changes to show the selected border type.

Setting the channel code

The channel button sets the device and button channel codes.

Channel codes and variable text codes work the same for all button types, including joysticks, and bargraphs.

1. In the Button Properties page, press DEV to open the keypad and set the touch panel's device number.

2. Enter 1, 2, 3, or 4 in the keypad. The programming software uses device codes 1 - 4 to identify the touch panel. Refer to the *G3 Firmware Design and Reference* instruction manual for more information.

If DEVICE USED is set to 4 and Base Device Number is 128, the Controller recognizes bus devices 128 - 131.
The panel will not allow you to enter a device number greater than the DEVICE USED without first displaying a decision box asking if you accept the new selection or not.

3. Press ENTER to save the device number, close the keypad, and return to the Button Properties page.

4. Press CHAN to open the keypad and enter a channel value of 1 - 255. The source code uses the channel code number to identify the button and its programmed operations. The channel code for non-active buttons is 0.

5. Press ENTER to save the channel number, close the keypad, and return to the Button Properties page.

Setting the variable text code

The variable text buttons set the device and button channel codes for the buttons.

1. Press DEV to open the keypad and set the device number.

2. Enter 1, 2, 3, or 4 in the keypad. The source code uses device codes 1 - 4 to identify the touch panel.

3. Press ENTER to save, close the keypad, and return to the Button Properties page.

4. Press CHAN to open a keypad and set the channel number.

5. Enter a channel value of 1 - 255 in the keypad. The source code uses the channel code number to identify the button and its operations.

6. Press ENTER to save the channel number, close the keypad, and return to the Button Properties page.

Setting the page flip

1. Press the PAGE FLIP Type button (FIG. 15) in the Button Properties page to open the Page Flip Type menu.

Page FLIP type button ——— Flip to Page button

```
FLIP STANDARD        MAIN PAGE
```

FIG. 15 Page FLIP Type button

2. Select a Page Flip type. If you select FLIP PREVIOUS in the Page FLIP Type menu, the FLIP to Page button appears.

3. Press the FLIP to Page button (FIG. 15) to open a list of all the saved touch panel pages. If the desired page is not present in the menu, check to verify the page has been saved.

4. Select the target page for the page flip.

Setting the button colors for channel-off conditions

1. Press any button to open the Button Properties page.

2. Press BORDER under CHANNEL OFF in the Button Properties page. The color palette appears. Select a color to set as the border.

3. Press the FILL button in the Button Properties page to open the palette. Select a color to set as the fill.

4. Press the TEXT button to open the palette. Select a color to use for the text.

5. Press EXIT SAVE CHANGE in the Button Properties page to save the new button properties and return to the current page.

Adding text, icons, and bitmaps to a button

1. Press BUTTON on the Edit bar to open the BUTTON menu.

2. Press TEXT/IMAGE to add text to the button. The TEXT/IMAGE operation bar appears.

3. Press any button to open the Text/Image page.

4. Go through each option and set as desired:

   - TEXT OFF and TEXT ON sets the text for the button's Off and On state.

   - ICON OFF and ICON ON sets the icon for the button's Off and On state.

   - BITMAP OFF and BITMAP ON sets the bitmap for the button's Off and On state.

   - MAKE ON SAME AS OFF sets the On and Off properties the same.

NOTE

You cannot create or edit buttons with Unicode fonts on the panel. Any use of the TEXT/IMAGE button to alter or create Unicode font supported buttons must be done in the TPDesign3 Touch Panel Design Program.

5. Press EXIT SAVE CHANGE to close the Text/Image page and return to the Main page.

Using TPDesign3 to Download Bitmaps, Icons, and Fonts

TPDesign3 allows you to download bitmaps, icons, and fonts into your touch panel from an existing touch panel program. Touch Panel programs are created in the TPDesign3 software program. Refer to the *TPDesign3 Touch Panel Program (version 3.13 or higher)* instruction manual for more information. Use the Download to Panel button to download a project file.

To download bitmaps, icons and/or fonts from an existing TPDesign3 project file:

1. Launch the TPDesign3 software program and open a project file that contains the desired bitmaps, icons, and fonts.

2. Select File from the menu bar to open the File menu.

3. In the File menu, click on Download to Panel, this opens the Download to Panel dialog box.

4. Click on the Comm Settings tab to set the communications port, baud rate, and other communication settings.

5. Then, click the Actions tab to set the communication mode and select which elements of the project file you want to download to the touch panel.

6. In the What To Send area, select one or more of the available options (All Bitmaps, All Icons, All Fonts).

7. Select the mode of communication with the touch panel (RS-232 and AXlink). Confirm that the correct panel is selected by verifying the ID values with the Base Address assigned to the touch panel in the Protected Setup page.

8. After clicking Connect, the Available Panels list appears in the Available Panels field. Click Begin to start downloading the project file into the panel.

9. After completing the download, the bitmaps, icons and fonts that were downloaded are now accessible via the BITMAPS, ICONS and FONTS menus.

Creating a Bargraph and Joystick

Bargraphs are level monitors and adjustable level controls. These levels can be configured to monitor and adjust audio outputs and lighting levels.

Joysticks are vertical and horizontal direction controllers you can use for camera for pan and tilt control. Before you start, make sure to connect the touch panel to your Controller; otherwise, the joystick will not work properly.

Adding a bargraph or joystick button\

Create a new button using the ADD operation bar in the BUTTON menu.

1. Press BUTTON in the Edit bar to open the BUTTON menu.

2. Press PROPERTIES in the BUTTON menu to open the PROPERTIES operation bar.

3. Press any button to open the Button Properties page.

4. Press BUTTON TYPE to open the BUTTON TYPE menus. Choose a button type to open its Button Properties page.

Setting Bargraph and Joystick Properties

Use the Button Properties page to set channel, level, and button colors. Refer to the *Setting the variable text code* section on page 16 and the *Setting the channel code* section on page 15 for further information. Refer to the *Setting the button colors for channel-off conditions* section on page 17 for more information on colors for channel-off conditions.

Setting the level code

Level buttons set the device and number codes for the touch panels.

Joysticks actually use two level numbers. The first is for the X-axis and the second is for the Y-axis. You only need to specify the first level.

1. Press DEV to open a keypad and set the device number.

2. Enter 1, 2, 3, or 4 in the keypad. The programming software uses device codes 1 - 4 to identify the touch panel.

3. Press ENTER to save the level device number, close the keypad, and return to the Button Properties page.

4. Press NUM to open a keypad and set the level number assigned to the device.

5. Enter a number 1 – 8. Each device can have from 1 – 8 levels **except** joysticks, where the range is 1 – 7.

6. Press ENTER to save, close the keypad, and return to the Button Properties page.

Programming

You can program the touch panel to perform a wide variety of operations using AXCESS Send_Commands and variable text commands. Use the commands described in this section to program the touch panel.

System Send_Commands

System Send_Commands are stored in the Controller and direct the touch panel to perform various operations.

System Send_Commands	

ABEEP
 	
Outputs one panel beep even if the beep value is set to 0 in the Setup page.
	Syntax:
	  `"'ABEEP'"`
	Example:
	  `SEND_COMMAND TP, "'ABEEP'"`
	Beeps the panel.

ADBEEP
 	
Outputs a double beep even if the double beep value is set to 0 in the Setup page.
	Syntax:
	  `"'ADBEEP'"`
	Example:
	  `SEND_COMMAND TP, "'ADBEEP'"`
	Double beeps the panel.

AKEYB
 	
Opens the touch panel keyboard and initializes the text string entry.
	The keyboard string is set to null during power-up and is stored until power-down.
	Syntax:
	  `"'AKEYB-<text string>'"`
	Variables:
	  text string = 0 - 59 characters
	Example:
	  `SEND_COMMAND TP, "'AKEYB-TOUCH HERE'"`
	Opens the touch panel keyboard with TOUCH HERE in the display.

AKEYP
 	
Opens the touch panel keypad and initializes the number string entry.
	The keyboard string is set to null during power-up and is stored until power-down for.
	Syntax:
	  `"'AKEYP-<number string>'"`
	Variables:
	  number string = 0 - 9999
	Example:
	  `SEND_COMMAND TP,"'AKEYP-1988'"`
	Opens the touch panel keypad with 1988 in the display.

AKEYR
 	
Closes/opens the touch panel keyboard/pad.
	Syntax:
	  `"'AKEYR'"`
	Example:
	  `SEND_COMMAND TP,"'AKEYR'"`
	Closes the keyboard/keypad opened using the 'AKEYB' , 'AKEYP', or 'PKEYP' commands.

System Send_Commands (Cont.)	

BEEP
Gives an output of one beep.
	The Beep button in the Protected Setup page must be set from 1 - 10 for the BEEP command.
	Syntax:
	`"'BEEP'"`
	Example:
	`SEND_COMMAND TP,"'BEEP'"`
	Beeps the panel if the Beep button is not set to 0.

BRIT
Adjusts brightness of display.
	Syntax:
	`"'BRIT-<level>'"`
	Variables:
	level = 1 - 5 (1 = minimum; 5 = maximum)
	Example:
	`SEND_COMMAND TP,"'BRIT-5'"`
	Sets to highest brightness level.

CONT
Adjusts brightness of display.
	Syntax:
	`"'CONT-<level>'"`
	Variables:
	level = 1 - 12 (1 = minimum; 12 = maximum)
	Example:
	`SEND_COMMAND TP,"'CONT-12'"`
	Sets to highest brightness level.

CALIBRATE
Starts touch panel calibration.
	Syntax:
	`"'CALIBRATE'"`
	Example:
	`SEND_COMMAND TP,"'CALIBRATE'"`
	Starts the calibration operation on the touch panel.

CLOCK
Sets the time and date.
	Syntax:
	`"'CLOCK <mm-dd-yy> <hh:mm:ss>'"`
	Variables:
	mm = 01 - 12, dd = 01 - 31, yy = 00 - 99
	hh = 00 - 23, mm = 00 - 59, ss = 00 - 59
	Example:
	`SEND_COMMAND TP,"'CLOCK 02-08-98 19:16:00'"`
	Sets the touch panel's date to February 8, 1998, and time to 7:16 p.m.

DBEEP
Gives a double beep output.
	This command only works if the Double Beep value in the Protected Setup page is set to ON.
	Syntax:
	`"'DBEEP'"`
	Example:
	`SEND_COMMAND TP,"'DBEEP'"`
	Double beeps the panel.

MOUSE
Turns on the Microsoft Serial Mouse.
	Syntax:
	`"'MOUSE'"`
	Example:
	`SEND_COMMAND TP,"'MOUSE'"`
	Activates the Microsoft Serial Mouse.

System Send_Commands (Cont.)

PAGE
 	
Flips to page with specified page name.
	Syntax:
	`"'PAGE-<page name>'"`
	Variables:
	  page name = 1 - 50 ASCII characters
	Example:
	`SEND_COMMAND TP, "'PAGE-MAIN PAGE'"`
	Flips the touch panel to the page named MAIN PAGE.

PKEYP
 	
Displays asterisks (*) for keypad entries.
	Syntax:
	`"'PKEYP-<number string>'"`
	Variables:
	  number string = 0 - 9999
	Example:
	`SEND_COMMAND TP, "'PKEYP-1988'"`
	Displays the touch panel keypad with **** instead of 1988.

PPOF
 	
Closes a specific popup page.
	Syntax:
	`"'PPOF-<page name>'"`
	Variables:
	  page name = 1 - 50 ASCII characters
	Example:
	`SEND_COMMAND TP,"'PPOF-Popup Page 1'"`
	Closes Popup Page 1.

PPON
 	
Opens a specific popup page.
	Syntax:
	`"'PPON-<page name>'"`
	Variables:
	  page name = 1 - 50 ASCII characters
	Example:
	`SEND_COMMAND TP,"'PPON-Popup Page 1'"`
	Opens Popup Page 1.

QBEEP
 	
Stops all beeps.
	Syntax:
	`"'QBEEP'"`
	Example:
	`SEND_COMMAND TP,"'QBEEP'"`
	Stops *all* beeps.

RESET
 	
Clears panel status (same as power up). Saved data is not cleared.
	Syntax:
	`"'RESET'"`
	Example:
	`SEND_COMMAND TP,"'RESET'"`
	Resets the touch panel.

SETUP
 	
Goes to the Setup page.
	Syntax:
	`"'SETUP'"`
	Example:
	`SEND_COMMAND TP, "'SETUP'"`
	Flips the touch panel to the Setup page.

System Send_Commands (Cont.)	

SLEEP
 	
Forces the touch panel to screen saver mode.
	Syntax:
	
	`"'SLEEP'"`
	
	Example:
	
	`SEND_COMMAND TP,"'SLEEP'"`
	
	Activates the screen saver mode.

$SC
 	
Sends a serial port send_command within a panel, as if sent from Axcess.
	Syntax:
	
	`"$SC <device offset>,"'<send_command>,<variable`
	`text #>,<data>'""`
	
	Variables:
	
	device offset = Device number
	
	variable text # = The variable text number value on the touch panel.
	
	Example:
	
	`$SC 1,"'@TXT',2,'TEXT'"`
	
	The string is sends the command to put text on a button with a variable text value of 2. It is crucial that all the correct ' and " be used with no spaces after the commas.
	
	Example:
	
	`$SC 1,"'SLEEP'"`
	
	Sets a touch panel to sleep.

$ST
 	
Sets the power time-out for TiltScreen panels.
	The command is followed by 1, 2, or 3 ASCII digits.
	
	The entered number is not valid when there is no WAV-PK connected to the TiltScreen panels. The command is sent to the WAV-PK, which then sends it to the panel.
	
	Syntax:
	
	`"'$ST <number>'"`
	
	Variables:
	
	number = 1 - 255 ASCII characters
	
	Example:
	
	`SEND_COMMAND TP, "'$ST 31'"`
	
	The number entered is based on the minute increments available within the touch panel such as 30, 60, 120 minutes. This number will be rounded down to match an increment.

TPAGEOFF
 	
Deactivates page tracking.
	Syntax:
	
	`"'TPAGEOFF'"`
	
	Example:
	
	`SEND_COMMAND TP,"'TPAGEOFF'"`
	
	Deactivates the page tracking option.

TPAGEON Activates page tracking.	See TPAGEON on page 24 for more information.

WAKE
 	
Deactivates screen-saver mode and resets sleep timer.
	Syntax:
	
	`"'WAKE'"`
	
	Example:
	
	`SEND_COMMAND TP,"'WAKE'"`
	
	Deactivates the touch panel screen-saver mode and resets the sleep timer.

ZAP!
 	
Clears all memory; erases buttons, pages, drawings, and symbols.
	Syntax:
	
	`"'ZAP!'"`
	
	Example:
	
	`SEND_COMMAND TP, "'ZAP!'"`
	
	Clears all memory and erases all buttons, pages, drawings, and symbols.

Only use the ZAP! command to erase all the saved data in the touch panel; data cannot be recovered after it is erased.

WARNING

System Send_Commands (Cont.)

TPAGEON
 	
Activates page tracking.
	Syntax:
	
	`"'TPAGEON'"`
	
	Example:
	
	``
	SEND_COMMAND TP,'TPAGEON'
	
	DEFINE_DEVICE
	TP1 = 128 (*AMX Touch Panel*)
	TP2 = 129 (*AMX Touch Panel*)
	
	DEFINE_VARIABLE
	TP1_BUFFER[100] (*Buffer for TP1*)
	TP2_BUFFER[100] (*Buffer for TP2*)
	TRASH[50] (*For Parsing Above*)
	
	DEFINE_START
	CREATE_BUFFER TP1,TP1_BUFFER
	CREATE_BUFFER TP2,TP2_BUFFER
	SEND_COMMAND TP1,'TPAGEON'
	SEND_COMMAND TP2,'TPAGEON'
	
	DEFINE_PROGRAM
	(* PAGE TRACKING ROUTINE *)
	IF(LENGTH_STRING(TP1_BUFFER))
	{
	  IF(FIND_STRING(TP1_BUFFER,'PAGE-',1))
	  {
	    TRASH=REMOVE_STRING(TP1_BUFFER,'PAGE-',1)
	    SEND_COMMAND TP2,"'PAGE-',TP1_BUFFER"
	    CLEAR_BUFFER TP1_BUFFER
	  }
	  IF((FIND_STRING(TP1_BUFFER,'PPON-',1))
	OR(FIND_STRING(TP1_BUFFER, 'PPOF-',1)))
	  {
	    SEND_COMMAND TP2,TP1_BUFFER
	    CLEAR_BUFFER TP1_BUFFER
	  }
	}
	
	IF(LENGTH_STRING(TP2_BUFFER))
	{
	  IF(FIND_STRING(TP2_BUFFER,'PAGE-',1))
	  {
	    TRASH=REMOVE_STRING(TP2_BUFFER,'PAGE-',1)
	    SEND_COMMAND TP1,"'PAGE-',TP2_BUFFER"
	    CLEAR_BUFFER TP2_BUFFER
	  }
	  IF((FIND_STRING(TP1_BUFFER,'PPON-',1)) OR
	(FIND_STRING(TP1_BUFFER,'PPOF-',1)))
	  {
	    SEND_COMMAND TP1,TP2_BUFFER
	    CLEAR_BUFFER TP2_BUFFER
	  }
	}
	``
	
	(* The command string is sent to the Controller in the 'PAGE-(page name)' or 'PPON/PPOF-(page name)' format. The string is captured in the buffer for one panel and sent to the other panel. If panels are combined using the DEFINE_COMBINE statement, the routine needs to be written only once, and the command is sent back to the same panel. *)
	(* END OF PAGE TRACKING ROUTINE *)

Programming Numbers

The following information provides the programming numbers for colors, fonts, and borders

- Colors can be used to set the colors on buttons, sliders, gauges, and pages. The lowest color number represents the lightest color-specific display; the highest number represents the darkest display. For example, 0 represents light red, and 5 is dark red.

Colors and Programming Numbers			
Color	**No.**	**Color**	**No.**
Red	0 - 5	Purple	54 - 59
Orange	6 - 11	Magenta	60 - 65
Yellow	12 - 17	Pink	66 - 71
Lime	18 - 23	White	72 - 77
Green	24 - 29	Light Gray	78 - 83
Aqua	30 - 35	Dark Gray	84 - 86
Cyan	36 - 41	Black	87
Royal	42 - 47	Transparent	255
Blue	48 - 53		

- Font styles are used to program text fonts on buttons, sliders, gauges, and pages. The programming numbers are assigned consecutively when downloaded to the touch panel.

You must import variable text fonts into a TPDesign3 project file, and download the project file containing the fonts to the touch panel. The variable fonts are programming numbers assigned by the touch panel during the download process.

NOTE

Font Styles and Programming Numbers			
No.	**Font styles**	**No.**	**Font styles**
1	Extra small	5	Extra large
2	Small	6	Hollow medium
3	Medium	8	Hollow extra large
4	Large	32 - 255	Variable fonts

- Border styles can be used to program borders on buttons, sliders, and gauges.

Border Styles and Programming Numbers			
No.	**Border styles**	**No.**	**Border styles**
0	No border	11	Double shadow
1	No border special	20	3-dimensional rectangle 1
2	Single line	21	3-dimensional rectangle 2
3	Double line	22	3-dimensional round 1
4	Triple line	23	3-dimensional round 2
5	Single rounded	24	3-dimensional neon 1
6	Double rounded	25	3-dimensional neon 2
7	Single raised	26	3-dimensional neon blue
8	Double raised	27	3-dimensional neon green
9	Triple raised	40	Single diamond
10	Double-line two single	41	Double diamond

Shorthand Send_Commands

The table below lists the shorthand Send_Commands you can use with touch panels. The shorthand command data is 1-byte, non-ASCII format except for pages, passwords, text, and bitmap names.

Shorthand Send_Commands	

@CBF
 	
Sets the OFF feedback border color to the specified color.
	This works only if the specified background color is not the same as the current color.
	Syntax:
	  `"'@CBF',<variable text address>,<color_number>"`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	  `SEND_COMMAND TP,"'@CBF',1,0"`
	Sets the OFF feedback border color to Red for the variable text button 1.

@CBN
 	
Sets the ON feedback border color to the specified color.
	This works only if the specified background color is not the same as the current color.
	Syntax:
	  `"'@CBN',<variable text address>,<color_number>`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	  `SEND_COMMAND TP,"'@CBN',2,78"`
	Sets the ON feedback border color to Gray for variable text button 2.

@CFF
 	
Sets the OFF feedback fill color to the specified color.
	This only works if the specified background color is not the same as the current color.
	Syntax:
	  `"'@CFF',<variable text address>,<color_number>"`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	  `SEND_COMMAND TP,"'@CFF',1,72"`
	Sets the OFF feedback fill color to White for variable text button 1.

@CFN
 	
Sets the ON feedback fill color to the specified color.
	This only works if the specified background color is not the same as the current color.
	Syntax:
	  `"'@CFN',<variable text address>,<color_number>"`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	  `SEND_COMMAND TP,"'@CFN',1,30"`
	Sets the ON feedback fill color to Aqua for variable text button 1.

Shorthand Send_Commands (Cont.)

@CPG
 	
Sets the page with specified page name back-ground color to the specified color.
	This only works if the new background color is not the same as the current color.
	
	Syntax:
	`"'@CPG',<color_number>,'<page name>'"`
	Variables:
	  color number = See the Colors and Programming Numbers table on page 26.
	  page name = 1 – 50 ASCII characters
	Example:
	`SEND_COMMAND TP,"'@CPG',87,'Main Page'"`
	Sets the page title to Main Page, and the color to Black.

@CPP
 	
Sets the page with specified page name back-ground color to the specified color.
	This only works if the specified background color is not the same as the current color.
	
	Syntax:
	`"'@CPP',<color_number>,'<pop-up page name>'"`
	Variables:
	  color number = See the Colors and Programming Numbers table on page 26.
	  pop-up page name = 1 – 50 ASCII characters
	Example:
	`SEND_COMMAND TP,"'@CPP',54,'Audio Page'"`
	Sets the popup page title to Audio Page, and the color to Purple.

@CTF
 	
Sets the OFF feedback text color to the speci-fied color.
	This only works if the specified background color is not the same as the current color.
	
	Syntax:
	`"'@CTF',<variable text address>,<color_number>"`
	Variables:
	  variable text address = 1 – 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP,"'@CTF',1,48"`
	Sets the OFF feedback text color to Blue for variable text button 1.

@CTN
 	
Sets the ON feed-back text color to the specified color.
	This only works if the specified background color is not the same as the current color.
	
	Syntax:
	`"'@CTN',<variable text address>,<color_number>"`
	Variables:
	  variable text address = 1 – 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP,"'@CTN',1,72"`
	Sets the ON feedback text color to White for variable text button 1.

@IDF
 	
The touch panel returns its MS-DOS file name in a string.
	Syntax:
	`"'@IDF'"`
	Example:
	`SEND_COMMAND TP,"'@IDF'"`
	The touch panel returns its MS-DOS file name in a string.

Shorthand Send_Commands (Cont.)

@IDP
 	
Queries the touch panel to return a string with the TPDesign3 project name.
	Syntax:
	
	`"'@IDP'"`
	
	Example:
	
	`SEND_COMMAND TP,"'@IDP'"`
	
	The touch panel returns a string that contains its TPDesign3 project name.

@MOU
 	
Sets the serial mouse type.
	Syntax:
	
	`"'@MOU',<touch_type>"`
	
	Variables:
	
	touch_type = <Mouse Off> = 0 and <Microsoft Serial Mouse> = 1
	
	Example:
	
	`SEND_COMMAND TP,"'@MOU', 1"`
	
	Sets the Microsoft Serial Mouse.

@PPA
 	
Removes all popup pages from a specified page.
	If no page is specified, the active page is used.
	
	Syntax:
	
	`"'@PPA-<page name>'"`
	
	Example:
	
	`SEND_COMMAND TP, "'@PPA-Main Page'"`
	
	If there were several popup pages on 'Main Page' that are active, sending the previous command would remove them all from 'Main Page'.

@PPF
 	
Deactivates a popup page on a touch panel page.
	If a page name is empty the current page is used. If a pop-up page is part of a group, the whole group is deactivated.
	
	Syntax:
	
	`"'@PPF-<popup page name>; <page name>'"`
	
	Variables:
	
	popup page name = target popup page name
	
	page name = target touch panel page name
	
	Example:
	
	`SEND_COMMAND TP,"'PPF-Laser Disc 2 Transport Control; Laser Disc Control Page'"`
	
	Deactivates the Laser Disc 2 Transport Control popup page on the Laser Disc Control Page.

@PPK
 	
Deactivates a popup page on *all* touch panel pages.
	If a pop-up page is part of a group, the whole group is deactivated.
	
	Syntax:
	
	`"'@PPK-<popup page name>'"`
	
	Variables:
	
	popup page name = target popup page name
	
	page name = target touch panel page name
	
	Example:
	
	`SEND_COMMAND TP,"'@PPK-Laser Disc 2 Transport Control'"`
	
	Deactivates the Laser Disc 2 Transport Control popup page on *all* touch panel pages.

Shorthand Send_Commands (Cont.)	

@PPN
 	
Activates a popup page on a touch panel page.
	If a page name is empty the current page is used.
	Syntax:
	`"'@PPN-<popup page name>;<page name>'"`
	Variables:
	  popup page name = Popup page name
	  page name = Page name
	Example:
	`SEND_COMMAND TP,"'@PPN-Laser Disc 2 Transport Control;`
	`Laser Disc Control Page'"`
	Activates the Laser Disc 2 Transport Control popup page on the Laser Disc Control Page.

@PPX
 	
Removes all panel popup pages.
	Syntax:
	`"'@PPX'"`
	Example:
	`SEND_COMMAND TP,"'@PPX'"`
	Closes all popup pages from all of the pages in the panel.

@PRO
 	
Sets the password for the touch panel Protected Setup page.
	Syntax:
	`"'@PRO-<protected setup password>'"`
	Variables:
	  protected setup password = 0 - 9999
	Example:
	`SEND_COMMAND TP,"'@PRO-1988'"`
	Sets the touch panel's Protected Setup page password to 1988.

@PWD
 	
Sets the password for the Page Flip on the touch panel.
	Syntax:
	`"'@PWD-<page flip password>'"`
	Variables:
	  page flip password = 0 - 9999
	Example:
	`SEND_COMMAND TP,"'@PWD-1988'"`
	Sets the page flip password to 1988.

@SSL
 	
Changes the Sleep string sent to the Controller when the touch panel activates sleep mode.
	Syntax:
	`"'@SSL-<string>'"`
	Variables:
	  string = alphanumeric characters
	Example:
	`SEND_COMMAND TP,"'@SSL-Touch Panel Deactivated'"`
	Sends Touch Panel Deactivated to the Controller.

@SST
 	
Changes the Startup string sent to the Central Controller when the touch panel powers up.
	Syntax:
	`"'@SST-<string>'"`
	Variables:
	  string = alphanumeric characters
	Example:
	`SEND_COMMAND TP,"'@SST-Touch Panel Power On'"`
	Sends touch panel Power On to the Central Controller when the touch panel powers up.

Shorthand Send_Commands (Cont.)	

@SWK
 	
Changes the wake-up string sent to the Controller when the touch panel is activated.
	Syntax:
	
	`"'@SWK-<string>'"`
	
	Variables:
	
	string = alphanumeric characters
	
	Example:
	
	`SEND_COMMAND TP,"'@SWK-Touch Panel Activated'"`
	
	Sends Touch Panel Activated to the Central Controller.

Color Send_Commands

Use the color Send_Commands to set the colors for text, buttons, and pages. Use the same command for setting gray scale values only change the color number value to reflect the gray scale (72-86) value.

Color Send_Commands	

CALL
 	
Sets the colors for a variable text button.
	You must use the variable text assignments to change button colors (see the Colors and Programming Numbers table on page 26).
	
	Syntax:
	
	`"'CALL<variable text address>-<data>'"`
	
	Variables:
	
	You must have the variable text assignments to change button colors.
	
	variable text address = 1 - 255
	
	data = 6 color number series for:
	
	FILL COLOR ON
	FILL COLOR OFF
	BORDER COLOR ON
	BORDER COLOR OFF
	TEXT COLOR ON
	TEXT COLOR OFF
	
	Example:
	
	`SEND_COMMAND TP,"'CALL1-87 72 87 72 72 87'"`
	
	Sets variable text button 1 to:
	
	FILL COLOR ON = Black
	FILL COLOR OFF = White
	BORDER COLOR ON = Black
	BORDER COLOR OFF = White
	TEXT COLOR ON = White
	TEXT COLOR OFF = Black

CBOFF
 	
Sets the OFF feedback border color to the specified color.
	Syntax:
	
	`"'CBOFF<variable text address>-<color_number>'"`
	
	Variables:
	
	variable text address = 1 - 255
	
	color number = See the Colors and Programming Numbers table on page 26.
	
	Example:
	
	`SEND_COMMAND TP,"'CBOFF1-72'"`
	
	Sets the OFF feedback border color to White for the variable text button 1.

Color Send_Commands (Cont.)

CBON	Syntax:

Sets the ON feedback border color to the specified color.	`"'CBON<variable text address>-<color _number>'"`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	  `SEND_COMMAND TP,"'CBON1-87'"`
	Sets the ON feedback border color to Black for variable text button 1.

CFOFF
Sets the OFF feedback fill color to the specified color.
	Syntax:
	  `"'CFOFF<variable text address>-<color_number>'"`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	  `SEND_COMMAND TP,"'CFOFF1-72'"`
	Sets the OFF feedback fill color to White for variable text button 1.

CFON
Sets the ON feedback fill color to the specified color.
	Syntax:
	  `"'CFON<variable text address>-<color _number>'"`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	  `SEND_COMMAND TP,"'CFON1-87'"`
	Sets the ON feedback fill color to Black for variable text button 1.

CPAGE
Sets the background page color to the specified color.
	Syntax:
	  `"'CPAGE<color_number>-<page name>'"`
	Variables:
	  color number = See the Colors and Programming Numbers table on page 26.
	  page name = 1 - 50 ASCII characters *(Page names are case sensitive.)*
	Example:
	  `SEND_COMMAND TP,"'CPAGE255-MAIN PAGE'"`
	Sets the background color on the MAIN PAGE to Transparent.

CTOFF
Sets the OFF feedback text color to the specified color.
	Syntax:
	  `"'CTOFF<variable text address>-<color _number>'"`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	  `SEND_COMMAND TP,"'CTOFF1-87'"`
	Sets the OFF feedback text color to Black for variable text button 1.

Color Send_Commands (Cont.)	

CTON
 	
Sets the ON feed-back text color to the specified color.
	Syntax:
	`"'CTON<variable text address>-<color _number>'"`
	Variables:
	  variable text address = 1 - 255
	  color number = See the Colors and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP,"'CTON1-72'"`
	Sets the ON feedback text color to White for variable text button 1.

Variable Text Send_Commands

Use variable text Send_Commands to set the borders, fonts, and text.

Variable Text Send_Commands	

!B
 	
Sets a specific button to On or Off.
	Syntax:
	`"'!B',<variable text address 1-255>,<ON/OFF 0-1>"`
	Variables:
	  variable text address = 1 - 255
	  ON = 0
	  OFF = 1
	Example:
	`SEND_COMMAND TP,"'!B',128, 1"`
	Sets button 128 Off.

BTOF
 	
Sets a specific button's active state to Off.
	Syntax:
	`"'BTOF',<variable text address>"`
	Variables:
	  variable text address = 1 - 255
	Example:
	`SEND_COMMAND TP,"'BTOF',255"`
	Sets the state for button 255 to Off.

BTON
 	
Sets a specific button's active state to On.
	Syntax:
	`"'BTON',<variable text address>'"`
	Variables:
	  variable text address = 1 - 255
	Example:
	`SEND_COMMAND TP,"'BTON',128"`
	Sets the state for button 128 to On.

Variable Text Send_Commands (Cont.)	

!C
 	
Sets the border, font, and text in one command.
	Syntax:
	`"'!C',<variable text address>,<border style>,<font size>,'<new button text>'"`
	Variables:
	  variable text address = 1 - 255
	  border style = See the Border Styles and Programming Numbers table on page 26.
	  font size = See the Font Styles and Programming Numbers table on page 26.
	  button text = Enter button text to appear on button.
	Example:
	`SEND_COMMAND TP,"'!C',1,6,6,'VCR PLAY'"`
	Sets the variable text button one title to VCR PLAY using a hollow medium font, and changes the border attribute to double rounded.

!F
 	
Shorthand version of 'FONT' command.
	Syntax:
	`"'!F',<variable text address>,'<font size>'"`
	Variables:
	  variable text address = 1 - 255
	  font size = See the Font Styles and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP,"'!F',1,6"`
	Changes variable text button one font to hollow medium.

FONT
 	
Changes the font size (or style) of the text in a specific button.
	Syntax:
	`"'FONT,<variable text address>-<font size>'"`
	Variables:
	  variable text address = 1 - 255
	  font size = See the Font Styles and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP,"'FONT,1-6'"`
	Changes variable text button one font to hollow medium.

!I
 	
Shorthand version of 'ICON' command.
	Syntax:
	`"'!I',<variable text address>,'<border style>'"`
	Variables:
	  variable text address = 1 - 255
	  border style = See the Border Styles and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP,"'!I',1,'6'"`
	Changes the variable text button one border style to double rounded.

ICON
 	
Changes the border style of a specific button.
	Syntax:
	`"'ICON,<variable text address>-<border style>'"`
	Variables:
	  variable text address = 1 - 255
	  border style = See the Border Styles and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP,"'ICON,25-6'"`
	Changes the variable text button 25 border style to double-rounded.

Variable Text Send_Commands (Cont.)

!T	Syntax:
Shorthand version of 'TEXT' command.	`"'!T',<variable text address>,'<new button text>'"`
	Variables:
	variable text address = 1 - 255
	new button text = 1 - 60 characters
	Example:
	`SEND_COMMAND TP,"'!T',1,'VCR PLAY'"`
	Changes the variable text button one title to VCR PLAY.
TEXT	*Use the	character to display text on multiple lines.*
Enters text on a button.	Syntax:
	`"'TEXT,<variable text address>-<new button text>'"`
	Variables:
	variable text address = 1 - 255
	button text = Enter button text to appear on button
	Example:
	`SEND_COMMAND TP,"'TEXT2-VCR|PLAY'"`
	Sets the VCR and PLAY text on variable button 2. The	character places VCR above PLAY on the button.

Shorthand Variable Text Commands

The table below lists the shorthand variable text commands you can use with the touch panel. The shorthand command data is one-byte, non-ASCII format except for pages, passwords, text, and bitmap names.

Shorthand Variable Text Commands	

@BMF
 	
Sets multiple attributes to a button, slider, or gauge.
	This command allows you to program up to 12 attributes on one command line.
	Syntax:
	`"'@BMF',<variable text address>,'<attribute data>'"`
	Variables:
	  variable text address = 1 - 255
	  optional data = See below
	Optional data:
	  '%R,<left>, <top>, <right>, <bottom>' = Sets the rectangle position.
	  '%B',<border styles> = See the Border Styles and Programming Numbers table on page 26.
	  '%F',<font styles> = See the Font Styles and Programming Numbers table on page 26.
	  '%T',<button text > = ASCII characters (empty is clear)
	  '%P',<bitmap> = Bitmap filename (empty is clear)
	  '%I',<icon> = 1 - 255 (icon numbers are assigned in TPDesign3 project file)
	  '%J',<text alignment> = 1 - 9 as shown the following alignment chart
	
	<table><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr></table>
	For %C1-%C6, see the Colors and Programming Numbers table on page 26.
	  '%C1',<on-state fill color>
	  '%C2',<off-state fill color>
	  '%C3',<on-state border color>
	  '%C4',<off-state border color>
	  '%C5',<on-state text color>
	  '%C6',<off-state text color>
	Example:
	`SEND_COMMAND TP,"'@BMF',255,'%T POWER |ON'`
	`'%B','4','%C1','72'"`
	Sets the text on button 255 to POWER ON (appears on two lines), adds a triple-line border, and sets the On-state color to White.

@BMP
 	
Adds a bitmap file to a button.
	Bitmap files are imported into TPDesign3; the numbers are assigned by the touch panel during the download process.
	Syntax:
	`"'@BMP',<variable text address>,'<bitmap>'"`
	Variables:
	  variable text address = 1 - 255
	  bitmap = Bitmap
	Example:
	`SEND_COMMAND TP, "'@BMP',85,'Bitmap1'"`
	Adds the Bitmap1 file to button 85.

Shorthand Variable Text Commands (Cont.)	

@BOR
 	
Sets the border style on a button.
	Syntax:
	`"'@BOR',<variable text address>,<border style>"`
	Variables:
	  variable text address = 1 - 255
	  border style = See the Border Styles and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP, "'@BOR',65,11"`
	Sets the border style to Double shadow on button 65.

@ENA
 	
Enables/Disables buttons based on their variable text channel.
	Syntax:
	`"'@ENA',<variable text address>,<disable button on/off>`
	Variables:
	  variable text address = 1 – 255
	  disable button on/off:
	    1 = button disabled
	    0 = button enabled
	Example:
	`SEND_COMMAND TP, "'@ENA',128,1"`
	Disables the button with variable text channel 128. This button will stop responding to pushes completely, until it is sent an Enable command. Nothing short of a touch panel Softrom firmware reload will re-enable the button. Reloading the touch panel file, reloading the Axcess program, or resetting power on the panel or master, will not re-enable the button. It must be sent an Enable command once it has been Disabled.

@FON
 	
Sets the text font on a button.
	Syntax:
	`"'@FON',<variable text address>,<font style>"`
	Variables:
	  variable text address = 1 - 255
	  font style = See the Font Styles and Programming Numbers table on page 26.
	Example:
	`SEND_COMMAND TP, "'@FON',56,32"`
	Sets the text on button 56 to variable font style 32.

@ICO
 	
Assigns an icon to a button.
	Syntax:
	`"'@ICO',<variable text address>,<icon>"`
	Variables:
	  variable text address = 1 - 255
	  icon file number = 1 - 255
	Example:
	`SEND_COMMAND TP,"'@ICO',16,12"`
	Adds icon 12 on button 16.

Shorthand Variable Text Commands (Cont.)	

@JUS
 	
Sets the text alignment on a button.
	Syntax:
	`"'@JUS',<variable text address>,<text alignment>"`
	Variables:
	variable text address = 1 - 255
	text alignment = 1 - 9 as shown in the following alignment chart
	
	<table><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr></table>
	
	Example:
	`SEND_COMMAND TP, "'@JUS',9,5"`
	Centers the text on button 9.

@SHO
 	
Sets a specific button to on or off.
	Syntax:
	`"'@SHO',<variable text address>,<button on/off>"`
	Variables:
	variable text address = 1 - 255
	button on/off:
	0 = button Off
	1 = button On
	Example:
	`SEND_COMMAND TP,"'@SHO',128,0"`
	Sets button 128 off.

@TXT
 	
Adds text to a button.
	*Use the	character to display text on multiple lines.*
		Syntax:
		`"'@TXT',<variable text address>,'<text>'"`
		Variables:
		variable text address = 1 - 255
		button text = Enter button text to appear on button.
		Example:
		`SEND_COMMAND TP,"'@TXT',2,'VCR|PLAY'"`
		Sets the VCR and PLAY text on variable button 2. The
			character places VCR above PLAY on the button.

@UNI
 	
Adds Unicode text to a button.
	Syntax:
	`"'@UNI',<variable text address>,'<text>'"`
	Variables:
	variable text address = 1 - 255
	button text = Enter button text to appear on button.
	Example:
	`SEND_COMMAND TP,"'@UNI',2,'(Foreign Text)'"`
	Sets the Foreign Text on variable button 2.

Characters for Middle-Eastern languages such as Arabic are not supported within the Unicode fonts because they are bi-directional. Buttons with Unicode fonts can only be created and edited using TPDesign3 and NetLinx Studio. Refer to the respective manuals for additional information.

NOTE

Button String Commands

The table below lists string commands you can assign to buttons using the touch panel editor. Select the PROPERTIES option in the Edit bar, press the target button, and enter the string command with the Touch Panel keyboard. The string command is sent to the control system when you press the button.

Button String Commands	

$ID
 	
Sets the Wave-Pack group ID number.
	Syntax:
	`"'$ID <group ID>'"`
	Variables:
	group ID = 0 (Off) - 15
	Example:
	`$ID 15`
	Sets the Group ID to 15.

$SC
 	
Sends a serial port send_command within a panel, as if sent from Axcess.
	Syntax:
	`"$SC <device offset>,"'<send_command>,<variable text #>,<data>'""`
	Variables:
	device offset = Device number
	variable text # = The variable text number value on the touch panel.
	data = 0 - 59 characters
	Example:
	`$SC 1,"'@TXT',2,'TEXT'"`
	The string is sends the command to put text on a button with a variable text value of 2. It is crucial that all the correct ' and " be used with no spaces after the commas.
	Example:
	`$SC 1,"'SLEEP'"`
	Sets a touch panel to sleep.

$SL
 	
Activates sleep mode on a wireless touch panel.
	This command does not set the panel to sleep, but actually puts a wavepack to sleep.
	Syntax:
	`"$SL"`
	Example:
	`$SL`
	Activates sleep mode on a wireless touch panel (ViewPoint or other panel using a SmartPack/WavePack).

$SP
 	
Sends data out through the serial port of the source panel to a destination panel.
	Syntax:
	`"'$SP"<data>"'"`
	Examples:
	`$SP "CALIBRATE"'"`
	Sends the Calibrate command to another panel through the Serial Port.
	`$SP "$SC 1,"'@TXT',1,'TEST'""`
	Uses the $SP command to send a Send Command ($SC ***) to another panel through the Serial Port.

Button String Commands (Cont.)	

$ST
 	
Sets the idle time to activate sleep mode for a touch panel in 1-minute increments.
	When the touch panel's input time matches the sleep time, the panel goes to sleep.
	Syntax:
	`"'$ST <sleep timeout>'"`
	Variables:
	  sleep timeout = 1 (Off) - 120 (minutes)
	Example:
	`$ST 5`
	Sets the touch panel's sleep time to 5 minutes.

$TO
 	
Sends touch coordinates out through the program port.
	Syntax:
	`"'$TO <touch output enabling via the program port>'"`
	Variables:
	  touch output enabling = 0 (Input Touch Only), 1 (Input and Output Touch)
	Example:
	`$TO 0`
	  Sets the panel only to input touch.

Upgrading the Firmware

In order to upgrade the firmware in the panel, you can either return the panel to AMX or replace the necessary EPROM chips yourself. Standard memory on the G3 boards for the CP series of touch panels is 1 MB of base memory. The EPROM chips are pre-loaded with the firmware, and can be obtained from the factory or dealer, then installed into the touch panel circuit board.

AXT-CP EPROM Replacement

Remove the EPROMs from the AXT-CP:

1. Discharge the static electricity from your body by touching a grounded object.

2. Remove the 2-pin power connector from the rear side of the panel. If you are using power via AXlink, remove the AXlink connector.

3. Flip the touch panel face down onto a soft cloth, and remove the seven Phillips-head screws from the bottom panel. Then, gently remove the panel.

4. Remove the Phillips-head screw located in the center of the circuit card.

5. Gently tilt the circuit card down towards the connector side and pull backwards until you clear the connector housing. Then, slowly rotate the circuit card backwards until you can lay it down flat with the EPROMs exposed as seen in FIG. 16. EPROMS have stickers indicating the firmware version.
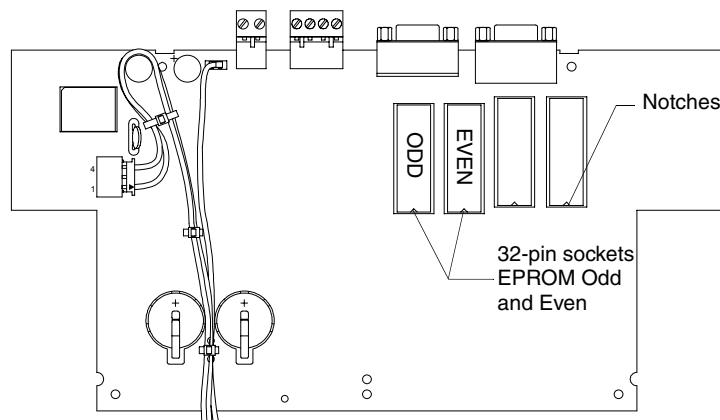

FIG. 16 EPROM location on a TiltScreen touch panel

6. Carefully remove each EPROM individually by inserting a Phillips screwdriver with a non-conducting flat-blade between the EPROM and the connection site (at the notch side).

7. Gently pry the EPROMs from their connection base until they begin to loosen. Carefully pull them out by either using an EPROM removal device or by gently pulling them from the base (making sure to evenly pull the prongs from the socket holes)

.

⚠ **CAUTION**

Insert the EPROMs with the notches facing the correct direction. Match the Even and Odd EPROM placement with the location shown above.
During the replacement process, cables may be pulled from their connections and should be re-checked to confirm they are securely connected.

8. Using the new EPROMs, match up the socket holes to their respective prong and the notches to the correct direction for both the new Odd and Even chips.

9. Insert all the prongs simultaneously until each is firmly resting in its socket hole and the entire chip is securely connected to its base.

10. Rotate the circuit card back to the original position and place it in the touch panel housing.

11. Plug the 2-pin power or AXlink connector back into the touch panel for approximately 1 minute. Once you can confirm the panel is receiving power, remove the connector, align the screw hole and insert the Phillips-head screw and tighten.

12. Replace the bottom panel and align the screw holes. Insert the seven Phillips-head screws and tighten.

13. Plug all connectors back into the touch panel.

AXM-CP (/PB) and AXD-CP (/PB) EPROM Replacement

If the unit is already mounted to a surface, remove it at this time. Refer to the *Installation* section on page 3 for more information.

1. Discharge the static electricity from your body by touching a grounded object.

2. Remove the 2-pin power connector from the rear side of the panel. If you are using power via AXlink, remove the AXlink connector.

3. Flip the touch panel face down onto a soft cloth, and remove the seven Phillips-head screws from the bottom panel. Then, gently remove the housing.

4. Remove the Phillips-head screw located in the center of the circuit card.

5. Gently tilt the circuit card down towards the connector side and pull backwards until you clear the connector housing. Then, slowly rotate the circuit card backwards until you can lay it down flat with the EPROMs exposed as seen in FIG. 17. EPROMS have stickers that indicating the firmware version.
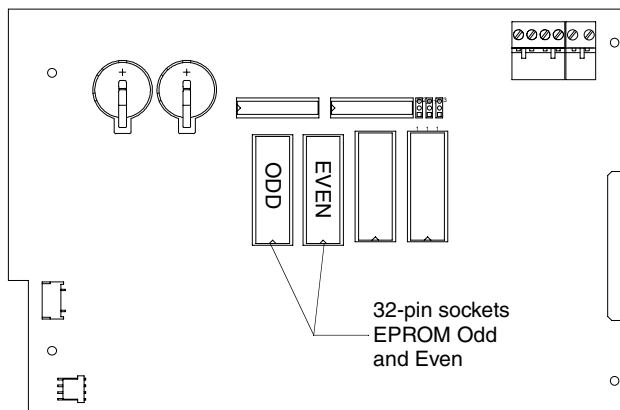

FIG. 17 EPROM location on a mounted touch panel

6. Carefully remove each EPROM by inserting a Phillips screwdriver with a non-conducting flat-blade between the EPROM and the connection site (at the notch side).

7. Gently pry the EPROMs from their connection base until they begin to loosen. Carefully pull them out by either using an EPROM removal device or by gently pulling them from their base (making sure to evenly pull the prongs from their socket holes).

.

Insert the EPROMs with the notches facing the correct direction. Match the Even and Odd EPROM placement with the location shown above.
During the replacement process, cables may be pulled from their connections and should be re-checked to confirm they are securely connected.

CAUTION

8. Using the new EPROMs, match up the socket holes to their respective prong and the notches to the correct direction for both the new Odd and Even chips.

9. Insert all of the prongs simultaneously until each is firmly resting in its socket hole and the entire chip is securely connected to its base.

10. Rotate the circuit card back to the original position and place it in the touch panel housing.

11. Plug the 2-pin power or AXlink connector back into the touch panel for approximately 1 minute. Once you can confirm the panel is receiving power, remove the connector, align the screw hole and insert the Phillips-head screw and tighten.

12. Replace the housing on the touch panel and align the screw holes. Insert the seven Phillips-head screws and tighten.

13. Plug all connectors back into the touch panel.

14. Re-install the unit to its appropriate mounting surface.

Replacing the Batteries

There are two lithium batteries on the touch panel card, with a life of approximately 5 years. They protect stored commands and pages against a power outage. The batteries are not used when DC power is supplied to the touch panel. You should write down the replacement date on a label by adding 5 years to the date of installation, and attach it to the panel for future reference.
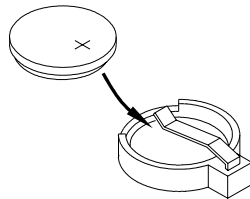

FIG. 18 Lithium battery and socket

Static electricity can damage electronic circuitry. Before removing the touch panel circuit card from the enclosure, discharge any accumulated static electricity from your body and flat-blade tool by touching a grounded metal object.

Before replacing the lithium batteries, make sure you have a current copy of the pages stored in the touch panel. This will avoid any inadvertent loss of data or a service outage. To replace the lithium batteries, you will need a Phillips screwdriver and a non-conducting flat-blade tool to slip under each battery to pry it up and out of the socket.

AXT-CP Batteries

Remove the lithium batteries from the AXT-CP:

1. Discharge the static electricity from your body by touching a grounded object.

2. Remove the two-pin power connector from the rear side of the touch panel. If you are using power via AXlink, remove the AXlink connector.

3. Flip the touch panel face down onto a soft cloth, and remove the seven Phillips-head screws from the bottom panel. Then, gently remove the panel.

4. Remove the Phillips-head screw located in the center of the circuit card.

5. Gently tilt the circuit card down towards the connector side and pull backwards until you clear the connector housing. Then, slowly rotate the circuit card backwards until you can lay it down flat with the batteries exposed.

6. Carefully slide one battery out of its socket, and insert the new battery

.

There is a danger of explosion if you replace the battery incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer. Dispose of the used battery according to the manufacturer's instructions. Never recharge, disassemble, or heat the battery above 212 °F (100 °C). Never solder directly to the battery or expose the contents of the battery to water.

7. Rotate the circuit card back to the original position and place it in the touch panel housing. Do **not** insert the mounting screw.

8. Plug the 2-pin power or AXlink connector back into the touch panel for approximately 1 minute. Then, remove connector from the panel again.

9. Gently tilt the circuit card down towards the connector side and pull backwards until you clear the connector housing. Then, slowly rotate the circuit card backward again until you can lay it down flat with the batteries exposed.

10. Carefully slide the other battery out of its socket, and insert the new battery.

11. Rotate the circuit card back to the original position and place it in the touch panel housing. Align the screw hole and insert the Phillips-head screw and tighten.

12. Place the bottom panel on the touch panel and align the screw holes. Insert the seven Phillips-head screws and tighten.

13. Plug all connectors back into the touch panel.

AXD-CP (/PB), and AXM-CP/PB Batteries

Remove the lithium batteries from the touch panel:

1. Discharge the static electricity from your body by touching a grounded object and unscrew the Decor-style faceplate.

2. Using a flat-blade tool unscrew the Decor-style faceplate.

3. Remove the four #6-32 mounting screws and carefully lean the touch panel backward to expose the connectors.

4. Disconnect all the connectors and remove the touch panel from the Back Box or equipment rack.

5. Flip the touch panel facedown onto a soft cloth and remove the four circuit card spacers.

6. Carefully pry one battery out of its socket and insert the new battery.

7. Return the touch panel to the Back Box or equipment rack and connect the power or AXlink connector back into the rear side of the panel for approximately 1 minute. Then, remove the connector from the panel again.

8. Flip the touch panel facedown onto a soft cloth and carefully remove the other battery out of its socket and insert the new battery.

9. Return the touch panel to the Back Box or equipment rack and reconnect all the connectors.

10. Insert the four rack mounting screws and tighten.

11. Place the Decor-style faceplate onto the bezel and install the engraved overlay.

AMX ™

AMX reserves the right to alter specifications without notice at any time.